REMARKS

This Amendment is in response to the Office Action mailed on June 3, 2011. Claim 1 is amended editorially. Claim 6 is new and is supported, for example, by original claim 2. No new matter is added. Claims 1-6 are pending.

Claim Objections:

Claims 1-5 are objected to for informalities. Claim 1 is amended as suggested by the Examiner. Withdrawal of this objection is requested.

§112, 2nd Paragraph Rejections:

Claims 1-5 are rejected as being indefinite. With respect to the terms "storage" and "portion", Applicants respectfully note that these terms are used throughout the specification and the figures and one skilled in the art would understand the meaning of these terms in light of the specification.

With respect to the phrase "converted into scanning of a display monitor so as to display an image on the display monitor", Applicants respectfully note that this phrase is used, for example, on page 3, lines 15-18, page 20, lines 15-18 and in the Abstract and one skilled in the art would understand the meaning of this phrase in light of the specification.

With respect to the paragraph beginning "a first spatial filter operation", this paragraph has been amended as suggested in the rejection.

With respect to the antecedent basis issues in claim 1, claim 1 is amended to remove these issues.

With respect to claim 2, claim 2 is amended to remove the issues identified in the rejection.

Withdrawal of these rejections is requested.

§103 Rejections:

Claims 1-5 are rejected as being unpatentable over Hwang (US Patent No. 7,604,596) in view of Napolitano (US Patent No. 6,679,846) and further in view of Holley (US Patent No. 5,779,640). This rejection is traversed.

Claim 1 is directed to an ultrasonic diagnosis apparatus that recites, among other features, a first spatial filter operation portion configured to subject each of a plurality of the reception beam data, including reception beam data converted from parallel reception beams received in parallel from a single transmission beam, to filtering for reducing a difference in image quality between adjacent beams based on the filter coefficient, thereby outputting image data.

The combination of Hwang, Napolitano and Holley does not teach or suggest these features. The rejection interprets Holley as teaching the above features of claim 1. In particular, the rejection interprets the filter weighting taught by Holley as reducing a difference in image quality between adjacent beams. This is incorrect.

Holley teaches an azimuthal spatial filter which operates to correct for geometric distortions. The filter weights applied by the spatial filter to the input signals are selected to vary in accordance with the azimuthal coordinates of the selected plurality of receive beams to reduce artifacts associated with multiple receive beam groupings (see, for example, column 11, lines 63-65 and claim 1 of Holley).

That is, the filter weights in Holley are selected based on the azimuthal coordinates of the selected plurality of receive beams. Thus, the filter weights of Holley are expressed as a function of coordinates. In contrast, claim 1 requires a filter coefficient calculation portion that calculates a filter coefficient based on a positional relationship between the reception beam and the transmission beam.

Accordingly, Holley fails to teach applying a filter coefficient to a reception beam datum converted from a parallel reception beam received in parallel with a target reception beam so as to be smaller than the filter coefficient applied to a reception beam data which is converted from a reception beam other than the parallel reception beam and is symmetrical in positional relationship to the reception beam data with respect to a center at a position of the target reception beam, as recited in claim 1. Thus, Holley does not provide filtering for reducing a difference in image quality between adjacent beams based on the filter coefficient.

Also, Holley teaches an ultrasound imaging system that is configured to reduce artifacts by correcting for geometric distortions (see column 1, lines 6-10 of Holley). In contrast, the above features of claim 1 provides an ultrasonic diagnosis apparatus that can

suppress visible boundaries between the reception beams that appear as stripes at a boundary, which is caused based on a significant variation between reception beams obtained from a single transmission beam and reception beams obtained from different transmission beams (see page 2, lines 11-24 and page 13, lines 11-23 of the present application). Thus, it would not be obvious to obtain the above features of claim 1 by modifying the combination of Hwang and Napolitano with the teachings of Holley.

For at least these reasons claim 1 is not suggested by the combination of Hwang, Napolitano and Holley and should be allowed. Claims 2-5 depend from claim 1 and should be allowed for at least the same reasons.

Conclusion:

Applicants respectfully assert that the pending claims are in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3804.

Respectfully submitted,

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